REL Pacific Ask A REL Response

Curriculum & Instruction
October 2020

Question:

Is there rigorous research on the use of peer-assisted learning, cooperative learning, or small groups to support student learning?

Response:

Following an established REL Pacific research protocol, we conducted a web-based search for methodologically rigorous resources related to peer-assisted, cooperative learning (see Methods section for search terms and resource selection criteria). We first prioritized studies in the Pacific and other Indigenous contexts for greater relevancy to our partners in the Pacific region; however, we included studies with more generalizable findings due to the limited amount of research available in these contexts. References are in alphabetical order and grouped according to the learning methods they address:

- Peer-assisted learning.
- Cooperative learning.
- Small groups.

References are not listed in order of relevance. Descriptions of the resources are quoted directly from the publication abstracts. We have not evaluated the quality of references and the resources provided in this response. We offer them only for your reference. Also, our search included the most commonly used research resources, but they are not comprehensive and other relevant references and resources may exist.

Research References

Peer-assisted Learning

August, D., Branum-Martin, L., Cardenas-Hagan, E., & Francis, D. J. (2009). The impact of an instructional intervention on the science and language learning of middle grade English language learners. *Journal of Research on Educational Effectiveness*, *2*(4), 345–376. https://eric.ed.gov/?id=EJ866981

> *From the abstract:* "The goal of this study was to assess the effectiveness of an intervention—Quality English and Science Teaching (QuEST)—designed to develop the science knowledge and academic language of middle grades English language learners studying science in their second language and their English-proficient classmates. Ten sixth-grade science teachers in 5 middle schools in a large south Texas district participated in the study. For each teacher, 2 sections were randomly assigned to the intervention, Project QuEST, and 2 sections were randomly assigned to the district curriculum. The sample of students included English language learners, former English language learners, and fluent English-speaking students. Treatment effects were tested separately for science knowledge and vocabulary using a 3-level multilevel analysis of covariance (students nested within section, sections nested within teacher, and teacher) with the analogous pretest serving as the covariate. Analyses included fixed effects of treatment assignment and the covariate. Treatment effects were tested at the level of the section. Results indicated that posttest differences favoring the treatment group sections were statistically significant for both science knowledge and vocabulary."

Kim, J. S., Hemphill, L., Troyer, M., Thomson, J. M., Jones, S. M., LaRusso, M. D., & Donovan, S. (2017). Engaging struggling adolescent readers to improve reading skills. *Reading Research Quarterly, 52*(3), 357–382. https://eric.ed.gov/?id=EJ1146095

From the abstract: "This study examined the efficacy of a supplemental, multicomponent adolescent reading intervention for middle school students who scored below proficient on a state literacy assessment. Using a within-school experimental design, the authors randomly assigned 483 students in grades 6–8 to a business-as-usual control condition or to the Strategic Adolescent Reading Intervention (STARI), a supplemental reading program involving instruction to support word-reading skills, fluency, vocabulary, and comprehension, and peer talk to promote reading engagement and comprehension. The authors assessed behavioral engagement by measuring how much of the STARI curricular activities students completed during an academic school year and collected intervention teachers' ratings of their students' reading engagement. STARI students outperformed control students on measures of word recognition (Cohen's d = 0.20), efficiency of basic reading comprehension (Cohen's d = 0.21), and morphological awareness (Cohen's d = 0.18). Reading engagement in its behavioral form, as measured by students' participation and involvement in the STARI curriculum, mediated the treatment effects on each of these three posttest outcomes. Intervention teachers' ratings of their students' emotional and cognitive engagement explained unique variance on reading posttests. Findings from this study support the hypothesis that (a) behavioral engagement fosters struggling adolescents' reading growth, and (b) teachers' perceptions of their students' emotional and cognitive engagement further contribute to reading competence."

Sáenz, L. M., Fuchs, L. S., & Fuchs, D. (2005). Peer-assisted learning strategies for English language learners with learning disabilities. *Exceptional Children, 71*(3), 231–247. https://eric.ed.gov/?id=EJ696976

From the abstract: "This study assessed the effects of Peer-Assisted Learning Strategies (PALS), a reciprocal classwide peer-tutoring strategy, on the reading performance of native Spanish-speaking students with learning disabilities (LD) and their low-, average-, and high-achieving classroom peers. Participants were 132 native Spanish-speaking English language learners (ELL) in Grades 3 through 6, along with their 12 reading teachers. Teachers were assigned randomly to PALS and contrast groups. PALS sessions were conducted 3 times a week for 15 weeks. Students were tested before and after treatment. PALS students outgrew contrast students on reading comprehension, and those effects were not mediated by student type.*"

Vaughn, S., Martinez, L. R., Wanzek, J., Roberts, G., Swanson, E., & Fall, A. (2017). Improving content knowledge and comprehension for English language learners: Findings from a randomized control trial. *Journal of Educational Psychology, 109*(1), 22–34. https://eric.ed.gov/?id=EJ1125544

From the abstract: "Supporting the reading comprehension and content knowledge acquisition of English language learners (ELs) requires instructional practices that continue beyond developing the foundational skills of reading. In particular, the challenges ELs face highlight the importance of teaching reading comprehension practices in the middle grades through content acquisition. We conducted a randomized control trial to examine the efficacy of a content acquisition and reading comprehension intervention implemented in eighth-grade social studies classrooms with English language learners. Using a within-teacher design, in which 18 eighth-grade teachers' social studies classes were randomly assigned to treatment or comparison

conditions. Teachers taught the same instructional content to treatment and comparison classes, but the treatment classes used instructional practices that included comprehension canopy, essential words, knowledge acquisition, and team-based learning. Students in the treatment group (n = 845) outperformed students in the comparison group (n = 784) on measures of content knowledge acquisition and content reading comprehension but not general reading comprehension. Both ELs and non-ELs who received the treatment outperformed those assigned to the BAU comparison condition on measures of content knowledge acquisition (ES = 0.40) and content-related reading comprehension (ES = 0.20). In addition, the proportion of English language learners in classes moderated outcomes for content knowledge acquisition."

Cooperative Learning

Hitchcock, J. Domino, J., Kurki, A.,Wilkins, C., & Gersten, R. (2011). *The impacts of collaborative strategic reading on the reading comprehension of grade 5 students in linguistically diverse schools.* (NCEE 2011-4001). National Center for Education Evaluation and Regional Assistance, Institute of Education Sciences, U.S. Department of Education. https://eric.ed.gov/?id=ED517770

> *From the abstract:* "Collaborative Strategic Reading (CSR) is a set of instructional strategies designed to improve the reading comprehension of students with diverse abilities (Klingner and Vaughn 1996). Teachers implement CSR at the classroom level using scaffolded instruction to guide students in the independent use of four comprehension strategies; students apply the strategies to informational text while working in small cooperative learning groups. The current study is a randomized controlled trial (RCT) examining the effect of CSR on student reading comprehension. Within each participating linguistically diverse school, grade 5 social studies classrooms were randomly assigned to either the CSR condition (using CSR when delivering social studies curricula) or to the control condition (a business-as-usual condition). The implementation period was one school year. This study focused on the following confirmatory research question: In linguistically diverse schools, do grade 5 students in CSR classrooms have higher average reading comprehension posttest scores on the Group Reading Assessment and Diagnostic Evaluation (GRADE) than students in control classrooms? In addition, the study examined three exploratory research questions about CSR's effect on two subgroups of students: (1) Do grade 5 former and current English language learner (FC-ELL) students in CSR classrooms have higher average reading comprehension posttest scores on the GRADE than FC-ELL students in control classrooms?; (2) Do grade 5 non-ELL students in CSR classrooms have higher average reading comprehension posttest scores on the GRADE than non-ELL students in control classrooms?; and (3) Does CSR have a differential impact on GRADE reading comprehension posttest scores for grade 5 FC-ELL and non-ELL students? The intent of these exploratory analyses was to examine whether there is an effect for each subgroup separately, as well as whether there is a differential effect between the subgroups. The primary finding of this study is that CSR did not have a statistically significant impact on student reading comprehension. Nine sensitivity analyses--including alternative statistical approaches, an alternative approach for handling missing data, and different sample specifications--showed that the findings were robust to different analytic approaches. Three exploratory analyses were also conducted to examine the effects of CSR on FC-ELL and non-ELL students. Statistically significant effects on student reading comprehension were not identified for either subgroup, and no statistically significant differential impacts were identified. It is often the case that RCTs, because of their greater rigor, do not support the findings of prior quasi-experiments (Glazerman, Levy, and Myers 2002, 2003). With all other design features held constant, randomization yields stronger evidence about program impacts than do quasi-experiments (Boruch 1997; Shadish, Cook, and Campbell 2002). The current investigation evaluated the impact of CSR in an effectiveness trial designed to approximate a district's implementation of

CSR. Data on the fidelity of implementation suggest that professional development was generally delivered according to plan. Data on teacher fidelity of CSR implementation showed that 78.8 percent of teachers reported using CSR two or more times a week, as instructed. However, the single observation conducted for each classroom found that 21.6 percent of CSR teachers were using all five core teacher strategies, which the study defined as full procedural fidelity; 56.8 percent of teachers were observed using three or fewer strategies."

Small Groups

Connor, C. M., Morrison, F. J., Fishman, B., Giuliani, S., Luck, M., Underwood, P., Bayraktar, A., Crowe, E., & Schatschneider, C. (2011). Classroom instruction, child X instruction interactions and the impact of differentiating student instruction on third graders' reading comprehension. *Reading Research Quarterly, 46*(3), 189–221. https://eric.ed.gov/?id=EJ935111

> *From the abstract:* "There is accumulating correlational evidence that the effect of specific types of reading instruction depends on children's initial language and literacy skills, called child characteristics × instruction (C×I) interactions. There is, however, no experimental evidence beyond first grade. This randomized control study examined whether C×I interactions might present an underlying and predictable mechanism for explaining individual differences in how students respond to third-grade classroom literacy instruction. To this end, we designed and tested an instructional intervention (Individualizing Student Instruction [ISI]). Teachers (n = 33) and their students (n = 448) were randomly assigned to the ISI intervention or a vocabulary intervention, which was not individualized. Teachers in both conditions received professional development. Videotaped classroom observations conducted in the fall, winter, and spring documented the instruction that each student in the classroom received. Teachers in the ISI group were more likely to provide differentiated literacy instruction that considered C×I interactions than were the teachers in the vocabulary group. Students in the ISI intervention made greater gains on a standardized assessment of reading comprehension than did students in the vocabulary intervention. Results indicate that C×I interactions likely contribute to students' varying response to literacy instruction with regard to their reading comprehension achievement and that the association between students' profile of language and literacy skills and recommended instruction is nonlinear and dependent on a number of factors. Hence, dynamic and complex theories about classroom instruction and environment impacts on student learning appear to be warranted and should inform more effective literacy instruction in third grade."

Coyne, M. D., McCoach, D. B., Ware, S., Austin, C. R., Loftus-Rattan, S. M., & Baker, D.L. (2019). Racing against the vocabulary gap: Matthew effects in early vocabulary instruction and intervention. *Exceptional Children, 85*(2), 163–179. https://eric.ed.gov/?id=EJ1202483

> *From the abstract:* "We investigated whether individual differences in overall receptive vocabulary knowledge measured at the beginning of the year moderated the effects of a kindergarten vocabulary intervention that supplemented classroom vocabulary instruction. We also examined whether moderation would offset the benefits of providing Tier-2 vocabulary intervention within a multitiered-system-of-support (MTSS) or response-to-intervention framework. Participants included students from two previous studies identified as at risk for language and learning difficulties who were randomly assigned in clusters to receive small-group vocabulary intervention in addition to classroom vocabulary instruction (n = 825) or to receive classroom vocabulary instruction only (n = 781). A group of not-at-risk students (n = 741) who received

classroom vocabulary instruction served as a reference group. Initial vocabulary knowledge measured at pretest moderated the impact of intervention on experimenter-developed measures of expressive vocabulary learning and listening comprehension favoring students with higher initial vocabulary knowledge. Tier-2 intervention substantially counteracted the Matthew effect for target word learning. Intervention effects on listening comprehension depended on students' initial vocabulary knowledge. Implications present benefits and challenges of supporting vocabulary learning within an MTSS framework."

Additional Resources to Consult

The Fuchs Research Group at Vanderbilt University, Peer Assisted Learning Strategies (PALS). https://frg.vkcsites.org/what-is-pals/

> *From the website:* "PALS research employed multiple studies that incorporated randomized field trials, resulting in the highest standards of research-based evidence. The strategic efficacy of PALS has been studied and evaluated over the past 35 years through close collaboration with hundreds of teachers to ensure that PALS' methods are feasible and effective in the classroom. With PALS, every student in the class is paired, and each pair consists of one student who is academically stronger than the other. PALS sessions vary from 20 to 45 minutes in duration 2 to 4 times a week. During these sessions, the students in a pair take turns as tutor and tutee while working on structured activities that introduce grade-relevant skills and hones in on the difficulties each pair of students may be experiencing. The pairing creates 10 to 15 instructional experiences in a given classroom. Each PALS manual provides you with all the information you need to implement PALS in your classroom, including teacher-directed scripted lessons and student materials. As a supplement to the core curriculum, PALS fits well with a variety of instructional approaches, and allows teaches to address a broader range of student developmental areas."

Strategic Education Research Partnership, Strategic Adolescent Reading Intervention (STARI). https://www.serpinstitute.org/stari

> *From the website:* "STARI, our reading intervention program, is a literature-focused, Tier II intervention for students in grades 6-9 who read two or more years below grade level. Using research-based practices and highly engaging texts, STARI addresses gaps in fluency, decoding, reading stamina, and comprehension, aiming to move struggling students to higher levels of proficiency at the end of one year. STARI actively engages students in discussions of cognitively challenging content aligned to the Common Core and other 21st century standards. Although STARI includes some instruction in decoding, it does not offer sufficient phonics support for students reading below a second grade level."

Methods

Keywords and Search Strings

The following keywords and search strings were used to search the reference database:

- "Peer learning"
- "Small group"
- "Peer assisted"

Databases and Resources

Because the requestor specifically asked for rigorous research on this topic, we searched the [What Works Clearinghouse](#) (WWC) using their *Find Evidence: Reviews of individual studies* search tool. The WWC evaluates research methodologies according to a strict set of rigorous criteria including random assignment to experimental and control groups. We searched for studies that met WWC criteria with or without exceptions, looking for studies that demonstrated at least one statistically significant finding.

Reference Search and Selection Criteria

REL Pacific searched the What Works Clearinghouse for studies that were published in English-language peer-reviewed research journals within the last 20 years. Sources included in this document were last accessed in October 2020.

REL Pacific prioritized documents that are accessible online and publicly available, and prioritized references that provide practical information based on peer-reviewed research for the education stakeholders who requested this Ask A REL.[1] For questions with small or nonexistent research bases, we may rely on, for example, white papers, guides, reviews in non-peer-reviewed journals, interviews with content specialists, and organization websites. Additional methodological priorities/considerations given in the review and selection of the references were:

- Study types—randomized control trials, quasi experiments, surveys, descriptive data analyses, literature reviews, etc.
- Target population, sample size, study duration, etc.
- Limitations, generalizability of the findings and conclusions, etc.

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[1] This memorandum is one in a series of quick-turnaround responses to specific questions posed by education stakeholders in the Pacific Region (American Samoa, the Commonwealth of the Northern Mariana Islands, the Federated States of Micronesia, Guam, Hawaiʻi, the Republic of the Marshall Islands, and the Republic of Palau), which is served by the Regional Educational Laboratory (REL Pacific) at McREL International. This memorandum was prepared by REL Pacific under a contract with the U.S. Department of Education's Institute of Education Sciences (IES), Contract ED-IES-17-C-0010, administered by McREL International. Its content does not necessarily reflect the views or policies of IES or the U.S. Department of Education, nor does mention of trade names, commercial products, or organizations imply endorsement by the U.S. Government.